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SUBJECT 25X1 Engineer Training Curriculum in the USSR

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1. In Merchant Fleet educational institutes, two types of engineers, technical and non-technical, are trained. Therefore, I shall group all subjects studied according to these two types of training.

2. At the present time [sic-1954] in the Soviet Union, there are five Merchant Fleet higher educational institutions and three for river transportation, not including academies and scientific research institutes. In the Merchant Fleet institutions, engineers receive technical training in the following specialties:

   a. Ship mechanics, specialists in steam, diesel, and turbine engines.

   b. Shipbuilding engineers, specialists in planning, construction, and repair of ships.

   c. Mechanization experts, specialists in the mechanization and equipping of ports.

   d. Hydro-technicians, specialists in planning, construction, and exploitation of waterways, ports and hydro-technical constructions.

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e. Ship repair engineers, specialists in the repair of hulls and of major and auxillary engines.

f. Electrical engineers, specialists in ship and industrial electrical equipment.

g. Radio technicians, specialists in ship radio equipment.

3. Besides, the Merchant Fleet institutions train engineers in the following non-technical specialties.

a. Mates and masters of heavy ships

b. Economists, specialists in the economy of steam ship companies, ports and industrial enterprises.

c. Exploitation, specialists in commercial exploitation of ships and ports.

4. The institutes of the River Fleet, train engineers in the following technical specialties:

a. Ship engineers, specialists in the operation and repair of ship engines.

b. Mechanization experts, specialists in mechanization and equipping of ports and docks.

c. Hydro-technicians, specialists in the planning, construction and exploitation of water ways and hydro-technical constructions.

d. Electrical engineers, specialists in ship electrical equipment and in particular, in diesel engines and in electrical equipment used in enterprises and hydro-technical constructions. The river transportation institutions also train engineers in the following non-technical specialties:

1. Mates and masters of heavy river ships (mostly passenger), diesel electric ships.

2. Economists, specialists in economics of steamship companies, ports and industrial enterprises.

3. Exploitationists, specialists in the exploitation of ships and ports.

5. The educational process in the higher institutions is broken down as follows:

a. Lectures
b. Practical work carried out in production. The lectures scheduled for each specialty are broken down as follows:

1. The general education cycle of lectures

2. The physical-mathematical cycle

3. The general technical cycle

4. The special cycle.

6. Practical class work consists of the lecturer going over with the students material he has given in his lectures, and the solving of problems and projects assigned by the instructor. Lab work is carried on both independently and under the supervision of the instructor. Home work consists of reviewing the lecture material and solving problems and working out projects. The practical production work is assigned in order to give the students an opportunity to relate their theoretical knowledge to their work.

7. [redacted]

25X1

I. Marine Engineering Faculty

A. The General Educational Cycle

1. Political Economics
2. Basic Marxism-Leninism
3. Military Training
4. Physical Education
5. English Language

B. Physical-Mathematical Cycle

1. Higher Math
2. Theory of Mechanics
3. Physics
4. Chemistry

C. General Technical Cycle

1. Descriptive Geometry
2. Mechanical Drawing
3. Thermo dynamics
4. Applied Mechanics
5. The Strength of Materials
6. Details of Machines and Lifting Mechanisms
7. General Electrical Technology
8. Hydraulics

D. Special Cycle

1. Technology of Metals and Ship Repair Materials
2. Ship Steam Boilers
3. Ship Steam Engines
4. Ship Steam Turbines
5. Internal Combustion Marine Engines
6. Marine Refrigeration Plants
7. Marine Auxiliary Engines
8. Ship Propellers
9. The Economics and Exploitation of Water Transportation
10. The Technology and Organization of Ship Repair
11. Metal Working Machines
12. Naval Training
13. Fire Fighting Techniques
14. The Electrical Equipping of Ships and the Study of Electric Engines for Propelling Ships

15. The Construction, Theory and Designing of Ships

16. Rules of Technical Exploitation of Ships and Machinery

II. Ship Building Faculty

A. The General Educational Cycle
(All subjects same as in I.)

B. Physical-Mathematical Cycle
(All subjects same as in I.)

C. General Technical Cycle
(All subjects same as in I.)

D. Special Cycle

1. Technology of Metals and Ship Building Materials
2. Ship Engines
3. Ship Propellers
4. Theory, Construction and Architecture of Ships
5. Economics and Exploitation of Water Transportation
6. Metal Working Machines
7. Naval Training
8. Fire Fighting Techniques
9. Rules for the Technical Exploitation of Ships
10. The Electrical Equipping and Propelling of Ships
11. Ship Elevator Mechanisms
12. Ship Statistics
13. Electric and Gas Welding and Cutting Apparatus
14. Ship Planning
15. Technology of Ship Building
16. Organization of Ship Building Production
17. Planning and Placing of Ship Systems
18. Testing of Ship Construction

III. Mechanization Faculty

A. General Educational Cycle
(All Subjects same as II with the exception that German is taught instead of English)

B. Physical-Mathematical Cycle
(Same as II)

C. General Technical Cycle
(Same as II)

D. Special Cycle

1. Technology of Metals
2. Ship Engines
3. Metal Working Machines
4. Naval Training
5. Fire Fighting Techniques in Ports
6. Construction Theory and Architecture of Ships
7. Rules of Technical Exploitation
8. Port Cargo Lifting Machines
9. Port and Ship Machines of Continuous Operation
10. Universal Floating Cranes

11. Electrically Equipped Port Machines
12. The Setting of Technical Norms for Loading and Unloading work.
13. Transportation in Ports
14. Technology and Organization of the Repairing and Installing of Port Machines and Equipment.

IV. Hydrotechnical Faculty

A. General Educational Cycle
(All same as III)

B. Physical-Mathematical Cycle
(All same as III)

C. General Technical Cycle
(All same as III with the exception that Geodesy replaces Thermo-dynamics)

D. Special Cycle

1. Technology of Construction Materials
2. Ship Engines
3. Military Training
4. Fire Fighting Techniques
5. Electrical Technical Equipping of Hydrotechnical Constructions
6. Construction
7. Hydrology and Hydrometrics
8. Water Research
9. Ports and Port Planning
10. Concrete and Steel Construction
11. Theory and Basis of the Planning of Hydrotechnical Equipment
12. The Statistics and Dynamics of Hydrotechnical Construction
13. The Fundamentals of Hydrotechnical Construction
14. Water Ways
15. Sluices and Dams
16. Dredging
17. Dredges
18. The Straightening of Rivers and the Regulation of Current
19. Construction and Architecture of Water Transportation Buildings
20. Pilings

V. Ship Repair Faculty

In the Ship repair faculty the same objects are studied as in the Marine Engineering Faculty. The only difference is that in the ship repair faculty the technology of materials, the organization and technology of ship repair and metal working machines are studied more intensively than in the Marine Engineering Faculty. On account of time and greater emphasis placed on the above subjects other subjects are not studied in as great a detail. The students of the ship repair faculty get most of their practical work in the ship repair enterprises. The students also study a special subject on the hot, cold, and the thermetic working of metals.

VI. The Electrical Engineering Faculty

A. The General Educational Cycle
(All same as IV with the exception that German is taught instead of English) (although recently English has been introduced)

B. Physical-Mathematical Cycle
(All same as IV)

C. General Technical Cycle
(All same as IV with the exception that Geodesy and Electrotechnology are not taught)

D. Special Cycle

1. Technology of Metals
2. The Technology of Electrical Materials
3. Fire Fighting Techniques
4. Theory and Construction of Ships
5. Electrical Equipping of Ships
6. Electrical Equipment and Industrial Enterprises
7. Electrical Engines for Ships
8. Electrical Propellers
9. Generators of Constant and Un-interrupted current
10. Ship Power Plants
11. Repair of Ship Electrical Equipment
12. Ship Electric Stations
13. Rules for the Technical Exploitation of Ship Electrical Equipment
14. Naval Training

VII. Radio Technical Faculty

A. General Educational Cycle
(All Same as VI with the exception that English instead of German is taught)

B. Physical-Mathematical Cycle
(Same as VI)

C. General Technical Cycle
(All same as in VI with the exception that mechanization details and hydraulics are not taught.

D. Special Cycle

1. Technology of Electrical Materials
2. Fire Fighting Techniques
3. Theory and Construction of Ships
4. Electrotechnology
5. Electrical Equipment of Ships
6. Electric Engines for Ships
7. Generators of Constant and Interrupted Current
8. Repair of Radio Equipment
9. Fleet Radio Communications
10. The Construction of Radio Transmitters
11. The Construction of Radio Receivers
12. Ship Antennas
13. Radio Navigation Equipment
14. The Construction of Accumulators
15. Rules for the Technical Exploitation of Ship Radio Equipment

16. Naval Training

VIII. Navigation Faculty

A. General Educational Cycle
(All subjects same as VII with the addition of Historical and Dialectical Materialism)

B. Physical-Mathematical Cycle
(All subjects same as VII with the addition of classes in Astronomy and Spherical Trigonometry)

C. General Technical Cycle
(All subjects same as number VII with the exception that Hydraulics replaces Applied Mechanics)

D. Special Cycle

1. Ship Power Plants
2. Naval Training
3. Theory, Construction and Architecture of Ships
4. Navigation
5. Sailing Directions
6. Marine Practice
7. Navigational Astronomy
8. Geography
9. Oceanography
10. Methods of Preventing Ship Collisions at Sea
11. Merchant Code of Navigation
12. Cargo
13. The Economics and Exploitation of Water Transportation
14. Electrical Navigational Devices
15. Radio Navigational Devices
16. Organization of Ship Work
17. Rules of Technical Exploitation
18. Managerial Accounting on Ships
19. Maritime Law
20. Ship Personnel Rosters

IX. Engineer-Electric Faculty

A. General Educational Cycle
(Same as VIII with the exception that German is taught instead of English.)

B. Physical-Mathematical Cycle

1. Higher Math
2. Physics
3. Chemistry

C. Special Cycle

1. Ship Power Plants
2. Military Training
3. The Planning of Work at Sea and in Ports
4. Technical-Economic Planning in Enterprises
5. Economics of Water Transportation
6. Economics of Industrial Enterprises
7. The Planning of Costs in Cargo Transportation
8. Planning of costs in Industrial Production

9. Work Accounting in the Ports and at Sea
10. Work Accounting in Industrial Enterprises
11. Water Transportation Bookeeping
12. Credit Accounting Operations in Water Transportation
13. Managerial Accounting in Water Transportation
14. Transportation Law
15. The Setting of Technical Norms in Water Transportation
16. Order and Directives of the Government Relating to Water Transportation

X. Engineer-Exploitation Faculty

A. General Educational Cycle
(Same as in IX with the exception that English is taught instead of German)

B. Physical-Mathematical Cycle
(Same as in IX)

C. Special Cycle

1. Ship Power Plants
2. Military Training
3. Planning of Work at Sea and in Ports
4. The Economics and Exploitation of Water Transportation
5. Planning of costs in the Transmission of Cargo
6. Work Accounting at Sea and in Ports
7. Managerial Accounting in Water Transportation
8. The Organization of Shipping
9. The Organization of Work in Ports
10. Transportation Law
11. Setting of Working Norms at Sea and in Ports
12. Loading and Unloading Operations in Ports
13. Cargo
14. Theory and Construction of Ships
15. Setting of Technical Norms for Loading and Unloading work
16. Lifting and Transporting Machines
17. Orders and Directives of the Government concerning Water Transportation

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